

ABSTRAK

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Judul Laporan Akhir : Rekondisi Mesin Pemotong Plat Manual Metalex FS-F5216 dan Modifikasi Penambahan Bak Penampungan Material Hasil Pemotongan di Bengkel Produksi Teknik Mesin

(2026: xv + 78 Halaman, 49 Gambar, 6 Tabel + 8 Lampiran)

Laporan akhir ini membahas proses rekondisi dan modifikasi Mesin Pemotong Plat Manual Metalex FS-F5216 di Bengkel Produksi Teknik Mesin Politeknik Negeri Sriwijaya. Penggunaan jangka panjang dan kurangnya perawatan preventif pada mesin menyebabkan penurunan performa, serta hilangnya komponen keselamatan seperti *Finger Guard*. Selain itu, tidak adanya sistem penanganan material menyebabkan sisa potongan plat (*scrap*) berserakan di lantai, sehingga menimbulkan risiko keselamatan (*tripping dan cutting hazard*) serta menurunkan efisiensi area kerja akibat kondisi yang tidak rapi. Kegiatan ini bertujuan untuk melakukan rekondisi menyeluruh pada mesin tersebut guna mengembalikan fungsi optimalnya, sekaligus melakukan modifikasi berupa penambahan bak penampung material hasil pemotongan untuk meningkatkan aspek Keselamatan dan Kesehatan Kerja (K3) serta budaya 5S/5R. Metode pelaksanaan meliputi identifikasi kerusakan, pembongkaran komponen, perbaikan dan penggantian baut penghubung, proses pendempulan, pengecatan ulang rangka, serta pembuatan ulang komponen *Finger Guard*. Modifikasi dilakukan dengan merancang dan memproduksi bak penampungan menggunakan plat baja yang dibentuk dengan sudut kemiringan 80° melalui proses bending dan pengelasan agar material dapat terkumpul secara gravitasi. Evaluasi dilakukan melalui uji coba fungsi mekanis dan analisis risiko K3 sebelum serta sesudah proyek. Hasil rekondisi menunjukkan mesin kembali berfungsi optimal dengan tampilan estetika dan proteksi struktural yang lebih baik. Pemasangan *Finger Guard* akrilik berhasil membatasi celah masuk material maksimal menjadi 8 mm, sehingga memberikan perlindungan fisik total pada jari operator tanpa menghalangi pandangan garis potong. Sementara itu, modifikasi bak penampung mampu menampung 100% material hasil potongan secara otomatis dan mengeliminasi bahaya tersayat dan tersandung di lantai.

Kata Kunci: Rekondisi, Modifikasi, Bak Penampung, *Finger Guard*, K3.

ABSTRACT

Desain of Apar Pin seal production Equipment (Making Process)

(2026: xv + 78 pp. + 49 Figures + 6 Tables + 68Attachments)

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**DIPLOMA–III MECHANICAL ENGINEERING STUDY PROGRAM
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This final report discusses the reconditioning and modification process of the Metalex FS-F5216 Manual Ifoot shear Machine in the Mechanical Engineering Production Workshop at the State Polytechnic of Sriwijaya. Long-term usage and a lack of preventive maintenance on the machine led to performance degradation and the loss of Safety components such as the Finger Guard. Furthermore, the absence of a material handling system caused cut sheet metal scraps to scatter across the floor, posing occupational Safety risks (tripping and cutting hazards) and reducing workspace efficiency due to untidy conditions. This project aims to conduct a comprehensive reconditioning of the machine to restore its optimal functions, while implementing a modification by adding a material collection bin for the cut pieces to enhance Occupational Safety and Health (OSH) standards and support the 5S/5R culture. The implementation methodology included defect identification, component disassembly, repairing and replacing connecting bolts, putty application, frame repainting, and reproducing the Finger Guard component. The modification involved designing and fabricating a collection bin from steel plate, formed at an 80° inclination angle through bending and welding processes to allow gravity-driven material accumulation. Evaluation was conducted through mechanical function testing and a comparative OSH risk analysis before and after the project. The reconditioning results demonstrated that the machine successfully regained its optimal functionality along with improved aesthetics and structural protection. The installation of the acrylic Finger Guard effectively restricted the material entry gap to a maximum of 8 mm, providing total physical protection for the operator's fingers without obstructing the visibility of the cutting line. Meanwhile, the modified collection bin successfully collected 100% of the cut pieces automatically and eliminated cutting and tripping hazards on the floor (Regular, Times New Roman 12 pts, 1,0 Space, 250 – 300 words)

Keywords : Reconditioning, Modification, Collection Bin, Finger Guard, OSH.